UNITED STATES PATENT APPLICATION

FOR

**GAMING DEVICE HAVING AN INPUT - OUTPUT
VALUE BONUS SCHEME**

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GAMING DEVICE HAVING AN INPUT - OUTPUT VALUE BONUS SCHEME

PRIORITY CLAIM

5   This application is a continuation application of U.S. Patent Application, Serial No. 09/963,121, filed on September 21, 2001, entitled "Gaming Device Having an Input-Output Value Bonus Scheme."

CROSS REFERENCES TO RELATED APPLICATIONS

This application relates to the following co-pending commonly owned patent applications: "GAMING DEVICE HAVING A SELECTIVELY ACCESSIBLE BONUS SCHEME," Serial No. 09/657,916, Attorney Docket No. 0112300-011; "GAMING DEVICE INCLUDING AWARDS THAT GENERATE ANOTHER AWARD," Serial No. 09/966,663, Attorney Docket No. 0112300-455; "GAMING DEVICE HAVING AN ORDERED DESIGNATION OF BONUS VALUES IN MULTIPLE VALUE SETS," Serial No. 09/978,913, Attorney Docket No. 0112300-479; "GAMING DEVICE HAVING PLAYER SELECTABLE AWARD DIGITS AND AWARD MODIFICATION" Serial No. 09/934,003, Attorney Docket No. 0112300-722; "GAMING DEVICE HAVING WAGER DEPENDENT BONUS GAME PLAY," Serial No. 09/960,880, Attorney Docket No. 0112300-762; "GAMING DEVICE HAVING MULTIPLE AWARD ENHANCING LEVELS," Serial No. 09/967,016, Attorney Docket No. 0112300-882; "GAMING DEVICE HAVING AWARD MODIFICATION OPTIONS FOR PLAYER SELECTABLE AWARD DIGITS," Serial No. 09/933,843, Attorney Docket No. 0112300-898; "GAMING DEVICE WITH A BONUS SCHEME HAVING REPEATED SELECTION OF VALUE SETS WITH OPTION TO SAVE VALUES," Serial No. 10/231,639,

1

Attorney Docket No. 0112300-1055; "GAMING DEVICE HAVING VALUE SELECTION BONUS," Serial No. 10/306,295, Attorney Docket No. 0112300-1176; "GAMING DEVICE HAVING VALUE SELECTION BONUS," Serial No. 10/354,514, Attorney Docket No. 0112300-1209; "GAMING DEVICE HAVING BONUS SCHEME WITH INCREMENTAL VALUE DISCLOSURE," Serial No. 10/447,779, Attorney Docket No. 0112300-1397; "GAMING DEVICE HAVING TERMINATION VARIABLES," Serial No. 10/429,001, Attorney Docket No. 0112300-1420; "GAMING DEVICE HAVING A MULTIPLE SELECTION AND AWARD DISTRIBUTION BONUS SCHEME," Serial No. 10/459,809, Attorney Docket No. 0112300-1421; "GAMING DEVICE HAVING A MULTIPLE SELECTION AND AWARD DISTRIBUTION BONUS SCHEME," Serial No. 10/452,304, Attorney Docket No. 0112300-1422; and "GAMING DEVICE HAVING SEPARATELY CHANGEABLE VALUE AND MODIFIER BONUS SCHEME," Serial No. 10/767,484, Attorney Docket No. 0112300-1820.

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DESCRIPTION

The present invention relates in general to a gaming device, and more particularly to a gaming device which has a bonus scheme which

2

involves applying one or more input values to one or more selections and receiving one or more output values in return.

BACKGROUND OF THE INVENTION

Many existing gaming machines, such as traditional slot machines, include bonus rounds. Typically, a bonus round begins when the player reaches a bonus triggering event in the primary game of the gaming device. In slot machines with reels, the triggering event usually occurs when the player reaches a predetermined combination of symbols on the reels. The bonus scheme generally provides the player with an opportunity to gain a bonus value before the bonus round terminates.

Some bonus schemes enable a player to choose from a plurality of selections. Each selection is associated with a value. Depending upon which choice a player makes, the player will receive a relatively high, low or no value at all.

To increase player enjoyment and excitement, it is desirable to provide players with new bonus schemes for gaming devices which enable players to apply certain input values to desired selections, resulting in output values.

SUMMARY OF THE INVENTION

The present invention provides a gaming device which includes a plurality of selections and one or more input values. An input value, at times referred to herein as a "starting value" includes any input or starting bonus value which a player can relate to or apply to a selection or symbol. When a player is described herein in terms of "relating" a value to a location, this includes the player associating a value with a location. One or more, and preferably all, of the selections are associated with a modifier. A selection, which is preferably a symbol,

3

can be a representation of any person, place or thing. The term modifier, as used herein, includes one or more numerical multiplication factors, addition factors or subtraction factors (including zero, the number one and all other numbers in fractional, whole or decimal form) and any game, award opportunity or event. When a modifier is applied to an input value, the result is an output value. An output value, at times referred to herein as an "ending value," is the mathematical result of a modifier being applied to an input value. In other words, the gaming device processor uses the numerical modifier to mathematically change the starting value or starting bonus value to an ending value or ending bonus value. For example, the gaming device may provide the player with an input value or starting value of ten. If the modifier of this input value or starting value is an addition factor of five, the output value or ending value would be fifteen. Generally, in operation the player applies one or more input values or starting values to one or more selections or symbols. The numerical modifiers associated with certain selections or symbols determine the output values or ending values for each selection or symbol. As an award, the player receives the total output value or ending value, which is the sum of the output values or ending values for each selection or symbol.

In one embodiment, the gaming device displays the selections to the player while masking or not revealing the associated modifiers. The gaming device enables the player to apply various input values to the selections on a one-by-one basis. Here, it is preferable that the player can only choose one selection one time for any one input value. When the player applies an input value to a particular selection, the gaming device reveals the modifier associated with that selection. Preferably, the gaming device also reveals the output value associated with that selection. When the player completes applying all of the input

4

values, the gaming device awards the player with the sum of the output values for all of the selections.

In an alternative embodiment, the gaming device enables the player to apply more than one input value to a single selection. When a player does so, the gaming device preferably displays on the selection itself a current listing of the input values applied to that particular selection. In this embodiment, the gaming device does not display the modifiers associated with the selections until the player has applied all of the input values to the selections.

In another embodiment, the gaming device provides the player with one input value and a plurality of selections and associated modifiers. The gaming device enables the player to apply incremental portions of the input value to desired selections. The player continues to make selections until the input value is depleted. For example, the gaming device may provide the player with a starting bonus amount of one hundred and enable the player to apply this one hundred value or amount in increments or portions of ten. The player thus applies or relates starting bonus amount portions to symbols on multiple occasions. After the player completes applying the entire starting bonus amount, the gaming device preferably displays the ending bonus amount portions associated with each symbol. The gaming device can display the total ending bonus amount instead of or in addition to the separate ending bonus amount portions.

In one embodiment, the bonus scheme of the present invention is used to imitate the workings of financial investment, risk and return. The gaming device displays the input values as bills and the selections as investment opportunities such as real estate. The total output value mimics the player's return on investments.

The bonus scheme of the present invention thus enables the player to apply one or more input bonus values to a plurality of

selections. Each selection is associated with a modifier, such as a multiplication factor of two or one-half. Depending upon which selections the player makes, the player can obtain a relatively high or relatively low total bonus output. This type of bonus scheme provides

5   players with increased entertainment and enjoyment.

It is therefore an advantage of the present invention to provide a gaming device having a bonus scheme with an input-output value bonus scheme.

Other objects, features and advantages of the invention will be

10   apparent from the following detailed disclosure, taken in conjunction with the accompanying sheets of drawings, wherein like numerals refer to like parts, elements, components, steps and processes.

BRIEF DESCRIPTION OF THE DRAWINGS

15   Fig. 1A is a perspective view of one embodiment of the gaming device of the present invention.

Fig. 1B is a perspective view of another embodiment of the gaming device of the present invention.

Fig. 2 is a schematic block diagram of the electronic

20   configuration of one embodiment of the gaming device of the present invention.

Fig. 3 is a graph of input values, output values and selections in one embodiment of the present invention.

Figs. 4A and 4B are top plan views of an example of input

25   values, output values and selections in one embodiment of the present invention.

Fig. 5 is a flow diagram of one embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Gaming Device and Electronics

Referring now to the drawings, two embodiments of the gaming device of the present invention are illustrated in Figs. 1A and 1B as

5   gaming device 10a and gaming device 10b, respectively. Gaming device 10a and/or gaming device 10b are generally referred to herein as gaming device 10. Gaming device 10 is preferably a slot machine having the controls, displays and features of a conventional slot machine. It is constructed so that a player can operate it while

10   standing or sitting, and gaming device 10 is preferably mounted on a console. However, it should be appreciated that gaming device 10 can be constructed as a pub-style table-top game (not shown) which a player can operate preferably while sitting. Furthermore, gaming device 10 can be constructed with varying cabinet and display designs,

15   as illustrated by the designs shown in Figs. 1A and 1B. Gaming device 10 can also be implemented as a program code stored in a detachable cartridge for operating a hand-held video game device. Also, gaming device 10 can be implemented as a program code stored on a disk or other memory device which a player can use in a desktop or laptop

20   personal computer or other computerized platform.

Gaming device 10 can incorporate any primary game such as slot, poker or keno, any of their bonus triggering events and any of their bonus round games. The symbols and indicia used on and in gaming device 10 may be in mechanical, electrical or video form.

25   As illustrated in Figs. 1A and 1B, gaming device 10 includes a coin slot 12 and bill acceptor 14 where the player inserts money, coins or tokens. The player can place coins in the coin slot 12 or paper money or ticket vouchers in the bill acceptor 14. Other devices could be used for accepting payment such as readers or validators for credit

cards or debit cards. When a player inserts money in gaming device 10, a number of credits corresponding to the amount deposited is shown in a credit display 16. After depositing the appropriate amount of money, a player can begin the game by pulling arm 18 or pushing

5   play button 20. Play button 20 can be any play activator used by the player which starts any game or sequence of events in the gaming device.

As shown in Figs. 1A and 1B, gaming device 10 also includes a bet display 22 and a bet one button 24. The player places a bet by

10   pushing the bet one button 24. The player can increase the bet by one credit each time the player pushes the bet one button 24. When the player pushes the bet one button 24, the number of credits shown in the credit display 16 decreases by one, and the number of credits shown in the bet display 22 increases by one.

15   At any time during the game, a player may "cash out" and thereby receive a number of coins corresponding to the number of remaining credits by pushing a cash out button 26. When the player "cashes out," the player receives the coins in a coin payout tray 28. The gaming device 10 may employ other payout mechanisms such as

20   credit slips redeemable by a cashier or electronically recordable cards which keep track of the player's credits.

Gaming device 10 also includes one or more display devices. The embodiment shown in Fig. 1A includes a central display device 30, and the alternative embodiment shown in Fig. 1B includes a central

25   display device 30 as well as an upper display device 32. Gaming device 10 preferably displays a plurality of reels 34, preferably three to five reels 34 in mechanical or video form at one or more of the display devices. However, it should be appreciated that the display devices can display any visual representation or exhibition, including but not

30   limited to movement of physical objects such as mechanical reels and

8

wheels, dynamic lighting and video images. A display device can be any viewing surface such as glass, a video monitor or screen, a liquid crystal display or any other display mechanism. If the reels 34 are in video form, the display device for the video reels 34 is preferably a

5   video monitor.

Each reel 34 displays a plurality of indicia such as bells, hearts, fruits, numbers, letters, bars or other images which preferably correspond to a theme associated with the gaming device 10. Furthermore, gaming device 10 preferably includes speakers 36 for

10   making sounds or playing music.

As illustrated in Fig. 2, the general electronic configuration of gaming device 10 preferably includes: a processor 38; a memory device 40 for storing program code or other data; a central display device 30; an upper display device 32; a sound card 42; a plurality of

15   speakers 36; and one or more input devices 44. The processor 38 is preferably a microprocessor or microcontroller-based platform which is capable of displaying images, symbols and other indicia such as images of people, characters, places, things and faces of cards. The memory device 40 can include random access memory (RAM) 46 for

20   storing event data, graphical data or other data generated or used during a particular game. The memory device 40 can also include read only memory (ROM) 48 for storing program code which controls the gaming device 10 so that it plays a particular game in accordance with applicable game rules and pay tables.

25   As illustrated in Fig. 2, the player preferably uses the input devices 44, such as pull arm 18, play button 20, the bet one button 24 and the cash out button 26 to input signals into gaming device 10. In certain instances it is preferable to use a touch screen 50 and an associated touch screen controller 52 instead of a conventional video

30   monitor display device. Touch screen 50 and touch screen controller

52 are connected to a video controller 54 and processor 38. A player can make decisions and input signals into the gaming device 10 by touching touch screen 50 at the appropriate places. As further illustrated in Fig. 2, the processor 38 can be connected to coin slot 12

5 or bill acceptor 14. The processor 38 can be programmed to require a player to deposit a certain amount of money in order to start the game.

It should be appreciated that although a processor 38 and memory device 40 are preferable implementations of the present invention, the present invention can also be implemented using one or

10 more application-specific integrated circuits (ASIC's) or other hard-wired devices, or using mechanical devices (collectively referred to herein as a "processor"). Furthermore, although the processor 38 and memory device 40 preferably reside on each gaming device 10 unit, it is possible to provide some or all of their functions at a central location

15 such as a network server for communication to a playing station such as over a local area network (LAN), wide area network (WAN), Internet connection, microwave link, and the like. The processor 38 and memory device 40 is generally referred to herein as the "computer" or "controller."

20 With reference to Figs. 1A, 1B and 2, to operate the gaming device 10 in one embodiment the player must insert the appropriate amount of money or tokens at coin slot 12 or bill acceptor 14 and then pull the arm 18 or push the play button 20. The reels 34 will then begin to spin. Eventually, the reels 34 will come to a stop. As long as the

25 player has credits remaining, the player can spin the reels 34 again. Depending upon where the reels 34 stop, the player may or may not win additional credits.

In addition to winning credits in this manner, preferably gaming device 10 also gives players the opportunity to win credits in a bonus

30 round. This type of gaming device 10 will include a program which will

10

automatically begin a bonus round when the player has achieved a qualifying condition in the game. This qualifying condition can be a particular arrangement of indicia on a display device. The gaming device 10 preferably uses a video-based central display device 30 to enable the player to play the bonus round. Preferably, the qualifying condition is a predetermined combination of indicia appearing on a plurality of reels 34. As illustrated in the five reel slot game shown in Figs. 1A and 1B, the qualifying condition could be the number seven appearing on three adjacent reels 34 along a payline 56. It should be appreciated that the present invention can include one or more paylines, such as payline 56, wherein the paylines can be horizontal, diagonal or any combination thereof.

Bonus Scheme

If a player achieves a bonus triggering or qualifying condition while playing the game, the gaming device 10 automatically initiates the bonus round of the present invention. In one embodiment, the bonus scheme of the present invention includes one or more input values or starting values, a plurality of selections or symbols and a numerical modifier associated with one or more, and preferably all, of the selections or symbols. The gaming device enables the player to apply or relate the input values to desired selections. Before the player applies an input value to a selection, the gaming device masks or does not reveal the modifier associated with that selection. When a player applies an input value to a selection, the gaming device, in turn, applies the modifier associated with that selection to the input value. The gaming device then provides the player with an output value or ending value which is the mathematical result of applying the modifier.

As illustrated in Fig. 3, the gaming device can involve any number of selections 100, such as selections 100a through 100h.

11

Here, the gaming device provides the player with four input values, specifically input values 102a through 102d. In this example, the player initially applied or related input value or starting value in the amount of one hundred 102a to selection 100e. The numerical modifier (not shown) associated with selection 100e decreased input 102a from the initial value of one hundred to a final value of eighty. Eighty is the output value or ending value 106a. Next, the gaming device provided the player with input value or starting value 102b in the amount of one hundred ten. When the player applied this input value or starting value 102b to selection 100b, the numerical modifier (not shown) associated with selection 100b decreased the input value or starting value to sixty. Therefore, the player's output value or ending value 106b is sixty. Next, the gaming device provided the player with input value or starting value 102c in the amount of thirty. When the player applied this input value or starting value 102c to selection 100c, the associated modifier (not shown) increased the input value or starting value 102c to the output value or ending value 106c an amount of one hundred twenty. A player can select a symbol by touching the touch screen at the location of a symbol or selecting a symbol using a predetermined indicator and a button. Preferably, the player relates an input value to a selection by selecting a symbol when a particular input value is highlighted or otherwise indicated.

If a modifier 104 is not associated with a selection, or if the modifier does not change the input value or starting value, the gaming device provides the player with an output value or ending value equal to the input value or starting value, as indicated by the identical input value or starting value 102d and output value or ending value 106d shown at selection 100g in Fig. 3. In this example, the player started the bonus round with a total input value or starting value of three

hundred thirty and ended the bonus round with a total output value or ending value of three hundred fifty.

In a preferred embodiment illustrated in Figs. 4A and 4B, the gaming device displays a plurality of selections 100 to the player, as well as a plurality of input values 102 to the player. In this example, the gaming device displays input values 102e through 102h to the player. Here, the total input value is one hundred eighty, and the gaming device provides this amount to the player in the form of the input value 102e of fifty, input value 102f of thirty, input value 102g of eighty and input value 102h of twenty. The gaming device also includes a predetermined number of modifiers, one or more of which can be used to modify an input value for a particular selection. In this example, the modifiers are multiplication factors where modifier 104a is two, modifier 104b is one-half, modifier 104c is one and modifier 104d is three. As illustrated in Fig. 4A, the player applied input value 102e to selection 100i, input value 102f to selection 100j, input value 102g to selection 100k and input value 102h to selection 100l.

Preferably, before the player made the selections, the gaming device displayed one or more graphical images on the selections 100. In an investment-theme embodiment, these images relate to investment opportunities, such as real estate, oil or gold. Also in this preferred embodiment, the gaming device displays the input values as monetary bills.

Regardless of the particular graphics displayed, it is preferable that each time a player applies or relates an input value to a selection, the gaming device then reveals the modifier associated with that selection. However, it should be appreciated that the gaming device can continue to mask the modifiers until the player applies all of the input values to the selections. In the example shown in the Figs. 4A and 4B, modifier 104a increased input value 102e from fifty to one

hundred; modifier 104b decreased input value 102f from thirty to fifteen; modifier 104c did not change input value 102g at all; and modifier 104d increased input value 102h from twenty to sixty. The result is a total output value of two hundred fifty five. Here the player

5   began with a total input value of one hundred eighty and obtained an increase of seventy five in value.

In this embodiment, it is preferable that the gaming device removes the images of the input values as players apply them to selections. Also, it is preferable that the gaming device reveals all

10   modifiers which the player could have reached after the player has applied all of the input values.

With reference to Fig. 5, in operation, once the bonus round begins, the gaming device displays the input values and selections to the player, as indicated by blocks 108 and 110. The player then

15   applies an input value to a selection, as indicated by block 112, and the gaming device preferably then reveals the modifier associated with such selection as indicated by block 114. This process continues until the player has applied all of the provided input values to selections, as indicated by diamond 116 and block 112. Once all the input values

20   have been applied, the gaming device provides the player with a total output value and the corresponding payout due to the player, as indicated by block 118. The bonus round then terminates, as indicated by block 120.

In an alternative embodiment of the present invention, the

25   gaming device provides the player with a single input value and enables the player to apply predetermined increments or portions of this input value to the selections. For instance, the player could apply an input value of one hundred in increments of five. Furthermore, it is preferable that the gaming device displays one or more graphical

30   representations or images which represent a decrease in the amount of

14

the input value as the player applies portions of the input value to selections.

In another alternative embodiment of the present invention, the gaming device enables the player to apply more than one input value to a single selection. When a player does so, the gaming device preferably displays on or adjacent to the selection itself a current listing of the input values applied to that particular selection. In this embodiment, the gaming device does not display the modifiers associated with the selections until the player has applied all of the input values to the selections or at least all of the input values the game allows the player to associate with a selection. This embodiment enables the player to take a risk that one selection may include a more valuable modifier such as a high multiplier.

In a further alternative embodiment of the present invention, the gaming device could enable the player to forfeit input values for revealing modifiers associated with certain selections. For example, the gaming device could provide a player with input values ten, twenty and thirty, and with a column of five selections. The player can discover the modifier associated with the top selection by forfeiting or giving up an input value (i.e., ten). The gaming device may then reveal a multiplier of four as the modifier. The player could then apply the twenty and thirty input values to the top selection, resulting in a total output of two hundred.

It should be appreciated that in any embodiment, the gaming device could enable the player to keep some or all of the input values, especially if the gaming device includes modifiers which substantially decrease the input value associated with the selections. Therefore, the player does not have to risk some or all of the input values. It should also be appreciated that all of the input values could be the same,

could be different, could sequentially increase or decrease, could be predetermined, or could be randomly determined.

Furthermore, any of the foregoing embodiments can be adapted to require the player to provide the input values or part of the input values. In such case, each input value applied to a selection would put some credits or wager of the player at risk.

In one embodiment, the bonus scheme includes a bonus fund of bonus credits. The gaming device preferably displays the bonus fund to the player, though the gaming device can inform the player of the bonus fund through sound. Using an input device, the player can relate all of the bonus fund or certain portions of the bonus fund to certain investment-related symbols. Investment-related symbols are symbols which graphically describe or illustrate one or more characteristics of investments. For example, an investment-related symbol could be a block of gold or certificate of stock in a consumer products company corporation. If a player relates a portion of the bonus fund to a particular investment-related symbol, the gaming device processor uses the numerical modifier associated with such symbol to provide the player with an investment return bonus value. This process may repeat itself on one or more occasion until a bonus round termination event occurs. The gaming device will then award the player with all gained return bonus values and terminate the bonus round.

The bonus scheme of the present invention therefore enables players to apply one or more input values or input bonus values to desired selections included in a plurality of selections. One or more, and preferably all of the selections, are associated with modifiers. Depending upon which input value or input bonus value a player applies to which modifier, the player can gain a relatively low or relatively high output value or output bonus value. This type of bonus

16

scheme increases the entertainment and enjoyment experienced by gaming device players.

While the present invention has been described in connection with what is presently considered to be the most practical and preferred embodiments, it is to be understood that the invention is not limited to the disclosed embodiments, but on the contrary is intended to cover various modifications and equivalent arrangements included within the spirit and scope of the claims. It is thus to be understood that modifications and variations in the present invention may be made without departing from the novel aspects of this invention as defined in the claims, and that this application is to be limited only by the scope of the claims.